

论文

尿中10种滥用药物的HPLC分析方法研究

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摘要:

应用高效液相色谱法(HPLC)对10种滥用药物进行系统分析,建立尿中10种成瘾性药物的定量分析方法。通过对高效液相色谱法色谱柱、流动相的选择,确定以 Zorbax C₈ 色谱柱,甲醇—0.05mol·L⁻¹磷酸二氢钾缓冲液—二乙胺(27:73:0.5,pH4)为流动相,220nm检测,可将10种组分基线分离,用固相萃取柱对样品进行前处理,回收率在87%以上,能有效地去除杂质。此法操作简便、系统性强,能快速检出药物并定量。

关键词: 滥用药物 高效液相色谱法 固相萃取法

STUDIES ON ANALYTICAL METHOD FOR 10 DRUGS OF ABUSE IN URINE USING HPLC

Ma Chen; Duan Hongjin; Zhang Honggui; Xu Yanqing and Zhou Tonghui

Abstract:

A systematic determination method for 10 drugs of abuse, morphine,codeine, 6-monoacetylmorphine, heroin, levorphanol, pethidine, ethylmorphine, anadol, pentazocine and ethamivan, using high performance liquid chromatography is described. Separation of the 10 drugs was achieved on a 25 cm×4.6 mm ID, 10 μm Zorbax C8 column, using methanol —0.05 mol·L⁻¹ KH₂PO₄— diethyl amine (27:73:0.5, pH 4) as mobile phase. Codeine was used as the interal standard. Calibration graphs were linear over the concentration range of 10~200 μg·ml⁻¹ and regression equations showed correlation coefficients of greater than 0.999. Precision (RSD) were found to be better than 3% for each compound. Precision and linearity of the method are satisfactory for clinical toxicological applications. The extraction procedure yielded cleaner extracts. The recovery rates from urine were all above 87% without interference. This method is rapid, sensitive and specific.

Keywords: High performance liquid chromatography Solid phase extraction column Drugs of abuse

收稿日期 1997-12-29 修回日期 网络版发布日期

DOI:

基金项目:

通讯作者:

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